
An Astute Choice: Anglo-Australian Cooperation on Nuclear Submarines in Historical Perspective

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This article assesses the strategic dilemma posed by the decision to acquire twelve submarines for the Royal Australian Navy. It evaluates the history of US and British collaboration with Australia with respect to submarines, noting the US commitment to supporting allied surface fleets, but not necessarily submarine capability. It challenges the argument that the submarine should be conventional and suggests that any attempt to create a hybrid using Air Independent Propulsion (AIP) is likely to see an expensive re-run of the Collins problems. There could now be scope to leverage a long association with Britain and utilise that country's work on nuclear attack submarines.

On 16 January 2013 Australia and Britain, at the annual summit of the Australia-United Kingdom Ministerial Consultations (AUKMIN), signed the Defence and Security Co-operation Treaty. British Foreign Secretary William Hague, in a statement that would have seemed fitting in a much earlier era of imperial cooperation, argued that the treaty would give “*strategic direction*” to the defence relationship. What strategic means is unclear but Australian Defence Minister Stephen Smith indicated “preliminary talks” with Britain on possible collaboration on frigates and submarines had begun.¹ The British Defence Secretary, Phillip Hammond, pointed to the economic advantages of pooling work on the development of a fleet of twelve submarines. What was of particular significance in Hammond’s statement, however, was the suggestion that “Australia might find Britain a more comfortable fit than the US in jointly developing military equipment”.²

The issue before the Australian Cabinet now is what sort of submarine could deliver the many tasks required in operating in some of the greatest expanses of water on the planet.³ The Europeans lead in conventional (i.e. non-nuclear) designs, but as Heather Ridout, the former Chief Executive of the Australian Industry Group, has argued: “Unlike the Europeans, who

¹ *The Australian*, 18 January 2013. Emphasis added.

² *The Australian*, 16 January 2013.

³ In 2008 Australia claimed jurisdiction over 27.2 million km² of the earth’s surface, dwarfing the next two largest claims, Russia with 21.5 million km² and the United States with 20 million km². ‘Australia Can Be a Superpower—Just Add Water’, *Sydney Morning Herald*, 20 March 2009.

operate their conventional submarines closer to base than the Australian Defence Forces, Australia's strategic requirements require range and autonomy".⁴ She was also clear, in a reminder of the rationale for the Collins class submarine four decades earlier, that such a large project was essential to Australian manufacturing, arguing against "an unfortunate desire within sections of Defence to at first seek an imported military off-the-shelf solution to meet Australia's defence capability requirements".⁵

On one point there is agreement among analysts—no such conventional submarine currently exists. Steve Davies, the executive director of the Submarine Institute of Australia and the former Royal Australian Navy (RAN) commander of the submarine fleet, was emphatic on the clear advantages of nuclear submarines:

on balance our need for range means our needs would be technically met best by a nuclear propelled system ... in terms of capability, nuclear [submarines] are probably 80 per cent better overall.⁶

In the assessment of Carlo Kopp of *Defence Today*, "a nuclear power train is the ultimate AIP [Air Independent Propulsion] as it presents no restrictions on submerged time" but, he argues, it is ruled out due to political risk:

It is unlikely therefore that nuclear propulsion will be studied and publicly assessed from an objective and rational perspective. The politics of perceptions rather than hard fact would dominate any attempt to pursue nuclear powered submarines.⁷

There has, however, been support for an approach to the United States to buy nuclear attack submarines, such as the Virginia class. This option would fit both the capability requirements of the RAN and the production schedule of the United States Navy (USN), with production set at the rate of one or two a year. The USN's forty-three remaining Los Angeles class will be replaced by the Virginia class which would be still in production in the 2030s when the Collins class submarines are due to be replaced.⁸ Tom Mahnken, professor of strategy at the US Naval War College, suggests that the price tag for conventional submarines would be similar to that of nuclear submarines. In Australia the former head of the Kokoda Foundation, Ross Babbage, thought it a good idea, claiming that ten Virginia class submarines could be purchased for \$28 billion. They could also be operated with American submarines, and maintained by US experts, at an Australian

⁴ *The Australian*, 29-30 May 2010.

⁵ *Ibid.* The Kinnard review had in fact called for a Military-off-the-shelf option (see <<http://www.defence.gov.au/dmo/publications/dprreport.pdf>>). I thank a reviewer for Security Challenges in making this point.

⁶ 'Secret Fleets', *Reveille*, vol. 85, no. 4 (July-August 2012), p. 29.

⁷ C. Kopp, 'Air Independent Propulsion—Now a Necessity', *Defence Today*, vol. 8, no. 5 (December 2010), p. 11.

⁸ A. Davies and M. Thomson, 'Mind the Gap: Getting Serious about Submarines', *ASPI Strategic Insights*, no. 57 (April 2012), pp. 4, 12.

submarine base.⁹ Peter Reith, former Defence Minister in the Howard Government, added his weight to the call and argued that nuclear submarines could be run from a joint Australian-US base in Western Australia,¹⁰ a step that would accord Australia the same sort of treatment that has so far only been extended to Britain with the acquisition of the Polaris missile.¹¹

However, cooperation on Polaris was based on the Anglo-US “special relationship” in the Cold War, with the USN basing the submarines at Holy Loch in Scotland followed, later, by President Kennedy’s decision in December 1962 to supply the Polaris nuclear missile submarines to the Royal Navy (RN). Possibly with this in mind the foreign affairs editor of *The Australian* newspaper, Greg Sheridan, took up the call and argued that a compelling case could be made by “a really creative Australian government” to convince the Americans to rotate or base the submarines in Australia. The addition of twelve Australian boats, he reasoned, would make a valuable contribution to the allied effort. Sheridan wrote of a “joint project”, which would “mean an even more intimate US-Australian alliance”.¹² The week after Sheridan’s article, however, Defence Minister Stephen Smith, who was in Washington to discuss a number of “strategic” issues that would bear on “interoperability and capacity building”, ruled out nuclear submarines, arguing that because Australia did not have a nuclear industry, such a decision would result in the RAN’s submarine operations being dependent upon foreign assistance.¹³

The Problem with US Assistance

Paul Dibb has given one plausible hint of the government preference for conventional submarines: “the US has never exported or leased a naval nuclear reactor. The US will not simply hand over sensitive nuclear military knowledge, even to its close ally”.¹⁴

The United States did in fact supply a Skipjack reactor to Britain, but the overarching point is that, as John Hardy argues: “A critical argument against

⁹ B. Nicholson, ‘Nuclear or not, We’ll Need Prefab Subs’, *The Australian*, 9 February 2011.

¹⁰ *The Australian*, 26-27 May 2012.

¹¹ Davies and Thomson, ‘Mind the Gap’, p. 15. Polaris was a nuclear powered ballistic missile submarine, carrying warheads in the range of 200 kilotons to 1.2 megatons. It was the mainstay of the US submarine leg of the nuclear triad deployed around the periphery of the Soviet Bloc from 1960 to 1975. Andrew Priest, ‘In American Hands: Britain, the United States and the Polaris Nuclear Project 1962-1968’, *Contemporary British History*, vol. 19. no. 3 (September 2005), pp. 353-76.

¹² Greg Sheridan, ‘Paralysed by our Crazy Anti-Nuclear Hysteria’, *The Australian*, 23-24 July 2011.

¹³ ‘Minister for Defence—Transcript—Press conference’, 23 April 2013, <<http://www.minister.defence.gov.au/012/04/23/minister-for-defence-transcript-press-conference/>> [Accessed 29 August 2013].

¹⁴ Paul Dibb, ‘Nuclear not an Option for Next Generation of Submarines’, *The Australian*, 18 January 2013.

purchasing US submarines has been a perception that America would not be interested in supplying their latest generation of submarines to Australia.”¹⁵

The submarine problem seems part of a general trend. A former senior defence official, Allen Behm, warned that the impulse to “buy American was well entrenched”, but there was a lack of “decisive lethality” in some weapons purchased from the United States, “especially underwater systems”. The problem, wrote Behm, was that “when it comes to Australian access to US source codes or advanced technology ... the relationship has been less forthcoming”.¹⁶

The Canadians have experienced similar problems. Strategic analyst Paul Mitchell argues that American restrictions on network access by allies impede full interoperability:

The real difficulty is not so much technical as policy oriented ... Releasability software helps to move information onto coalition networks in a timely fashion, but they are not gateways to the information that American officers use on a day-to-day basis.¹⁷

Mitchell stresses the problems of Canadian frigates working with US carrier groups, but the prospects of cooperation on nuclear submarines is even more problematic. On 5 June 1987 Prime Minister Brian Mulroney, tabled in the Canadian House of Commons a Defence White Paper, *Challenge and Commitment: A Defence Policy for Canada*. The “crown jewel” in the paper was the proposal to build between ten and twelve nuclear-powered attack submarines. Despite US defence ties the White Paper sought to plug the “capability gap” with boats that had the endurance to patrol the vast icy wastes and to have the endurance to move under the ice cap itself.¹⁸

In the end the program did not go ahead: it was cancelled by Mulroney in 1991, justified by claims of budgetary pressures. Operationally it was not the prospect of facing the much larger force of some 142 cruise-missile equipped Soviet submarines that provided added pause, but the fact that the United States saw the North West Passage as an international waterway and that any prospect of a Canadian nuclear submarine force was “unnecessary and even unwelcome”.¹⁹

¹⁵ J. Hardy, ‘The Case for an Australian Nuclear Submarine Fleet’, *Pnyx: Comment on Global Security and Politics*, 25 February 2012, <<http://www.pnyxblog.com>> [Accessed 29 August 2013].

¹⁶ A. Behm, ‘Strategic Tides: Positioning Australia’s Security Policy to 2050’, *Kokoda Paper*, no. 6 (November 2007), p. 77.

¹⁷ P. T. Mitchell, ‘Small Navies and Network-Centric Warfare: Is There a Role?’, *Naval War College Review*, vol. LVI, no. 2 (Spring 2003), p. 95.

¹⁸ A. Lajeunesse, ‘Sovereignty, Security and the Canadian Nuclear Submarine Program’, *Canadian Military Journal*, vol. 8, no. 4 (Winter 2007-2008), <<http://www.journal.forces.gc.ca/vol8/no4/lajeunes-eng.asp>> [Accessed 26 August 2013].

¹⁹ *Ibid.*

It is not at all clear that Washington has faith in Australia's submarine capability, especially if it comes at the expense of surface vessels. John Angevine of the Brookings Institute released a study in 2011 of Australian defence strategy in which he warned that attempts to acquire advanced air and sea platforms would only serve to limit US operational options.²⁰ Angevine argued that the "core" assumptions of the 2009 Australian Defence White Paper were "wrong ... Australia should not structure its defence force around the remote possibility of having to fight a major conflict alone". An American security guarantee, he argued, would "free" Australia from spending billions on "high end defence capabilities such as the twelve submarines envisaged in the White Paper and more on low-level capabilities".²¹ The conclusion that may, therefore, be drawn is that Collins submarines and their successors are not meant to play a role in such conflicts. Indeed, after the publication of 2013 Defence White Paper, Paul Dibb asked "If we are no longer structuring the defence force to fight a major power in high intensity combat why do we still need 12 large submarines?"²²

These views have attracted predictable support from Army circles. Former head of the Army Land Warfare Studies Centre, Michael Evans, noted that it was the army that historically carried the main burden and argued for an Australian Defence Force (ADF) role in the middle and lower spectrum of military operations in the Asia-Pacific. It would, he argued, be the USN that would have to carry the burden of any conflict with China: "As John Angevine notes, in the event of any USA-China confrontation over Taiwan or in the South China Sea, any ADF air-sea contribution would be of minimal relevance."²³

Evans leaves it to American strategy, such as that identified in the 2012 US Joint Operational Concept, to address issues such as "air-sea battle and denial capabilities directed at China".²⁴

What Evans ignores is the US pressure on Australia to share in the naval defence burden in such a strategy. It is simply not credible that the United States would simply write off an Australian commitment in a maritime conflict with China. Norman Friedman herein pointed to "two main positive developments" since the 2009 Defence White Paper: "the proclaimed US pivot towards Asia and a long-overdue expansion of the RAN *surface* force,

²⁰ John Angevine, *Dangerous Luxuries: How the Quest for High-End Capabilities Leaves the ADF Vulnerable to Mission Failure and More Dependent on the United States*, Lowy Institute for International Policy, June 2011; Michael Evans, 'The Essential Service: The Future of the Australian Army in a Global Age', *Quadrant*, vol. LVI, no. 10 (October 2012), p. 14.

²¹ *Sydney Morning Herald*, 31 May 2011.

²² *The Australian*, 6 May 2013.

²³ Evans, 'The Essential Service', pp. 10-19.

²⁴ *Ibid.*

in the form of the three Aegis destroyers and two large amphibious ships”.²⁵ Friedman argues that the “Chinese are working to make the Western Pacific an uncomfortable place for US carriers, which are the main vehicles of improvement in the Australian security situation.”²⁶

With the deployment of anti-carrier ballistic missiles such as the DF-21D, Australia can furnish both bases and escorts.²⁷ Pointedly, Friedman argued in a paper written for the RAN’s Maritime Studies Program in the year before the Howard Government’s 2000 Defence White Paper:

What can a medium-size navy do, then? It will probably rely mainly or completely on surface combatants. To make them truly effective it needs to connect them to some kind of wide-area sensing system. Its sensors need to be space-based ... It will be essential then, for the ships to have some sort of highly capable quick-reaction air defence system.²⁸

The issue ceased to be theoretical in April 2013 when the Gillard Government, amidst high tensions over the Senkaku-Diaoyu islands in the Ryukus, despatched HMAS *Sydney* to join the US carrier strike group operating out of Yokosuka. Australian Strategic Policy Institute (ASPI) head Peter Jennings, a strong supporter of the air-warfare destroyer bid, spoke of the significance of the move as rebuilding of relations with the US Pacific Command, although he conceded that it was a “small contribution compared with the firepower of the massive Seventh Fleet”.²⁹

US strategy has always been about the maintenance of the Mahan doctrine. Sea power, argued Alfred Thayer Mahan in his 1911 work *Naval Strategy Compared with the Principles and Practice of Military operations on Land*, was the key to the survival of any industrialised state. Access to raw materials and markets, secured by a blue water fleet and bases, was essential.³⁰ In more recent times Zbigniew Brzezinski has summed up US strategy on Asia as resting on “the advantages of being an offshore, maritime power” maintaining a balance of power in the region.³¹

In September 1998 the Nuclear Posture Review reaffirmed Washington’s future reliance on the triad of the Cold War—nuclear weapons launched from bombers, ICBMs (intercontinental ballistic missiles) and submarines.

²⁵ Norman Friedman, ‘The Strategic Environment’, *The Navy*, Special Edition: The Defence White Paper 2013 (Maritime), vol. 74, no. 4 (October-December 2012), pp. 12-6. Emphasis added.

²⁶ Ibid.

²⁷ Ibid.

²⁸ Norman Friedman, ‘New Technology and Medium Navies’, *Working Paper No. 1*, RAN Maritime Studies Program, August 1999, p. 38.

²⁹ ‘Warship to Join US Fleet in Hot Zone’, *The Australian*, 26 April 2013.

³⁰ J. Baylis, J. Wirtz, E. Cohen and C. S. Gray, *Strategy in the Contemporary World* (Oxford: Oxford University Press, 2002), p. 34.

³¹ Z. Brzezinski, *Strategic Vision: America and the Crisis of Global Power* (New York: Basic Books, 2012).

Extended deterrence was reaffirmed at the Washington Summit in 1999, held fifty years since the inception of NATO (North Atlantic Treaty Organization), and allies were asked to adopt a new strategic concept that would see their forces operate with those of the United States well beyond their traditional borders. It would be costly, but allies would access state of the art facilities in command and control, communications, computers, intelligence, reconnaissance and precision-guided munitions. So armed they would be, as Kugler saw it, “reconfigured as regional hubs for power projection”.³²

US maritime strategy, like that of the British Empire before it, gave pride of place to Allied assistance based on surface forces. To strategic analyst George Friedman, Australia’s role since 1900 “comes down to trade and access to sea lanes”. Its role is to export commodities to pay for manufactured goods; a challenge which requires it to align with the “leading global maritime power”. Australia has accordingly chosen to rely, he argues, on US sea lane protection and to deepen “economic relations with the US to balance its economic dependencies in Asia”. This means that it will “accept the military burdens this entails” and to create “regional forces able to handle events in Australia’s near abroad, from the Solomon Islands through the Indonesian archipelago”.³³ The point was underscored by Patrick Cronin of the Center for a New American Security at a recent forum on the Australia-US alliance organised by ASPI, where he stressed that there is a need for a “rebirth of Mahan”. Admiral Gary Roundhead, USN (Rtd.) added that there needed to be an alignment between strategy and acquisitions: “You are what you buy”. Jennings understood the view, stressing that Australia needed a fourth Air Warfare Destroyer and its SM3 missiles.³⁴

It is hard to avoid the conclusion that the USN has no role for the RAN submarines. Despite the fact that the Nuclear Non-Proliferation Treaty (NPT) treated nuclear propulsion differently to nuclear weapons since they were not “explosive” military uses of atomic power,³⁵ the USN has restricted information on naval reactors and its nuclear submarines do not need foreign ports.³⁶ Pointedly the US submarines based at Cockburn Sound in Western Australia during the Second World War did not operate under General Douglas MacArthur’s command, nor did they work with the RAN, instead they worked directly to the US submarine command. The Australia, New

³² R. L. Kugler, ‘Future US Defense Strategy’, in R. L. Kugler and E. L. Frost, *The Global Century: Globalisation and National Security*, vol. 1 (Washington DC: National Defense University, 2001), p. 381.

³³ G. Friedman, ‘Why Australia Has to Go To War’, *Australian Financial Review*, 24 May 2012.

³⁴ ASPI Canberra, ‘*The Future of the Australia-US Alliance*’, YouTube, 5 November 2012, <www.youtube.com> [Accessed 12 November 2012].

³⁵ See W. Reynolds and D. Lee, *Australia and the Nuclear Non-Proliferation Treaty 1945-1974* (Canberra: Department of Foreign Affairs and Trade, 2013).

³⁶ M. Pugh, *The ANZUS Alliance, Nuclear Visiting and Deterrence* (Cambridge: Cambridge University Press, 1989), pp. 5, 47, 91-4.

Zealand, United States Security Treaty (ANZUS) itself was from the beginning based on a commitment to both regional and alliance security and the operational area of the RAN limited under the Radford Collins Agreement to the Southwest Pacific.³⁷ In the assessment of Friedman, the future trajectory of Australian naval strategy was apparent—to develop a “long-overdue expansion of the RAN *surface* force, in the form of three Aegis destroyers”. Such vessels could, along with a US carrier base in Western Australia, contribute to the capacity of the USN to counter Chinese attempts to deny operations in the Western Pacific.³⁸

The 2000 Defence White Paper foreshadowed that the first replacement air warfare destroyer would be available in 2014 with two more by mid-2017.³⁹ Vice-Admiral Russ Crane explained at the time that the White Paper was “an essentially maritime strategy based on *expeditionary* concepts” with a capacity for “high end war fighting”. But he also issued a cautionary note:

we must be able to act independently where we have unique strategic interests at stake ... interoperability with our major allies are balanced against capability and value for money considerations in any system / equipment selection.⁴⁰

This has long been Australian strategy, but it brought to the fore squarely the tension about the relative priorities of building a navy around force projection and escort—a traditional RAN role—and the need to secure sea control as well as develop a strategic strike capability using submarines.

Cold War restraint herein saw the NPT model extended to submarines with submarine-launched ballistic missiles confined to the great powers. Yet the taboo on nuclear power extended also to attack submarines where the allies could have been expected to have a substantial role. This precedent is possibly more revealing of US intentions in the 2010 Quadrennial Defence Review which foreshadowed the greater use of Australian bases by the USN as part of the Pentagon’s so-called “air-sea battle concept”. Long-range strike assets such as submarines would be used in a naval blockade of China in the event of war.⁴¹ Australia’s role in the US air-sea Battle Plan is more uncertain. What does seem clear is that the United States, as Peter Layton explains, “remains more concerned about East Asia as a geographic entity” than on the broader Indo-Pacific region.⁴²

³⁷ Radford Collins Agreement—Defence Co-ordination in the Pacific and Indian Oceans. National Archives of Australia (NAA): A1209/116, 1965/6242.

³⁸ Norman Friedman, ‘The Strategic Environment’, *The Navy*, vol. 74, no. 4 (October-December 2012), pp. 12-5.

³⁹ Department of Defence, *Defending Australia in the Asia Pacific Century: Force 2030* (Canberra: Australian Government, 2009).

⁴⁰ *Defence Today*, December 2009, pp. 8-10.

⁴¹ A. Davies, ‘US To Seek More Help from Its Allies’, *The Australian*, 29-30 October 2011.

⁴² P. Layton, ‘Australia’s Defence White Paper: Revolution or Evolution?’, *Defence Today*, vol. 10, no. 4 (September 2013), p. 16.

There is a view that interoperability required Australian submarines to operate in the warm and shallow waters of Asia.⁴³ This suggests a division of labour between the US nuclear submarine role and the conventional submarine role of allies. In such a role it may well be that the United States might be attempting to extend the commitments of Commonwealth forces that operated under the Five Power Defence Agreement.

Exercises by elements of the Five Power Defence Forces date from 1971, in the wake of Britain's withdrawal from the East of Suez. Initially the parties had focussed on air defence, but following the Soviet deployment of naval forces to Cam Ranh Bay in Vietnam in the 1980s submarines were used in joint exercises, which have more recently focused on the security of sea lines of communication linking North East Asia to the South China Sea.⁴⁴ However in June 2012 the Defence Secretary Leon Panetta visited Cam Ranh Bay, the highest ranking official to visit Vietnam since 1975, to secure access to the port for visiting USN vessels. In doing so he declared that the United States would maintain a fleet of six carriers and Virginia class submarines "that can operate in deep and shallow waters". This may foreshadow cooperation with the RAN but it is also likely that Panetta was underscoring the fact the USN was quite capable of carrying out their own warm and shallow water operations.⁴⁵

Any decision to make nuclear submarines available to the RAN would be based on a strategy to operate with US submarines from HMAS *Stirling*, where they would be beyond the range of China's anti-access capabilities. This was the assessment of the November 2013 study of ANZUS by the US Center for Strategic and Budgetary Assessments. Significantly the report concluded that there is a stronger case for nuclear submarines than a conventional replacement for the Collins.⁴⁶ This view underscored the RAND Corporation report on Australia's future conventional submarines concluded that while there were clear advantages in "reaching back" or leveraging cooperation of the United States, especially in the provision of combat systems, but "there appears to be little investment in facilities dedicated to propulsion". However the United States seemed little better placed to help since in the Australian case there might be a need for a "hybrid" approach given the need to integrate *emerging* technologies. For

⁴³ P. Yule and D. Woolner, *The Collins Class Submarine Story: Steel, Spies and Spin* (Melbourne: Cambridge University Press, 2008); *Sydney Morning Herald*, 17 July 2009; *The Australian*, 26-27 May 2012.

⁴⁴ C. A. Thayer, 'The Five Power Defence Arrangements: The Quiet Achiever', *Security Challenges*, vol. 3, no. 1 (February 2007), pp. 79-96.

⁴⁵ 'US Seeks Vietnamese Base To Counter China', *Sydney Morning Herald*, 5 June 2012.

⁴⁶ *The Australian*, 8 November 2013.

that reason the report put particular emphasis on an early decision around propulsion, a crucial problem for conventional submarines.⁴⁷

Such a move is likely to be an expensive gamble. The Kokoda Foundation's work on the future submarine noted that "AIP increases the size, weight and complexity of a submarine and may need specialised facilities in port for refuelling".⁴⁸ The RAND report, however, ruled out assistance from non-US sources arguing that if the major systems in the submarine, such as the propulsion/power train, were provided by "international vendors", "then assistance from the US is severely limited and intellectual property issues come to the fore".⁴⁹

The problem is that the United States left work on conventional submarines to the Europeans, Japanese and South Koreans. An associated issue arises with closer defence collaboration with India, which is already equipped with nuclear submarines.⁵⁰ Significantly, Washington cannot act on the provision of nuclear technology without unhinging an alliance structure in Asia that has endured through the Cold War.⁵¹ Instead it will continue to insist on a Mahan strategy with allies committed to assisting with sea lane security in any 'containment' of China.

In any event, despite all of the arguments, the Obama Administration has closed the door on nuclear cooperation. In Prague on 5 April 2009, Obama declared a need to secure all fissile material, including Highly Enriched Uranium (HEU). The UN Security Council in Resolution 1887 called on states to minimise the use of HEU "to the greatest extent that it is technically and economically feasible".⁵² The question then is where else can Australia look for support on nuclear submarines?

Rear Admiral David Holthouse raised this issue at the Navy League in November 2010. Holthouse declared that it had taken him thirty years to get permission to look inside a US nuclear submarine from his first visit to Pearl Harbour in 1958. He also held open the possibility that the RAN might

⁴⁷ RAND, *Australia's Submarine Design Capabilities and Capacities: Challenges and Options for the Future Submarine*, General Distribution Report (Santa Monica: RAND, National Security Division, 2011), pp. 32, 47, 50, 77.

⁴⁸ B. Pacey, 'Sub Judice: Australia's Future Submarine', *Kokoda Papers*, no. 17 (January 2012), p. 35.

⁴⁹ RAND, *Australia's Submarine Design Capabilities and Capacities*, p. 77.

⁵⁰ D. Berlin refers to the "continuing development of ties with the US" which has seen "moderated" Indian views of naval cooperation with the USN—symbolised by the first naval exercises in Malabar 05 employing aircraft carriers. D. Berlin, *Naval War College Review*, vol. 59, no. 2 (Spring 2006), p. 64; G. Kampani et al., 'Debating India's Pathway to Nuclearization', *International Security*, vol. 37, no. 2 (Fall 2012).

⁵¹ See S. Bateman and D. Sherwood, *Strategic Change and Naval Roles: Issues for a Medium Naval Power*, Canberra Papers on Strategy and Defence, no. 102 (1993), p. 15; L. Buszynski, 'Emerging Naval Rivalries in the Indian Ocean: Implications for Australia', *Security Challenges*, vol. 5, no. 3 (Spring 2009).

⁵² *Bulletin of Atomic Scientists*, 13 April 2010.

approach the RN to supply submarine nuclear propulsion technology independent of the United States. While this might risk Australia's privileged access to USN technology, he surmised that times may have changed and that the United States might "not reject an overture from us out of hand today".⁵³

While this might be the case it is most unlikely that support will extend to the transfer of nuclear technology. The Hawke Government discontinued work on the full nuclear fuel cycle, and with it enrichment work, when it abolished the Australian Atomic Energy Commission (AAEC) in 1984, replacing it with ANSTO (Australian Nuclear Science and Technology Organisation). Hawke therefore resolved to work within the US International Nuclear Fuel Cycle organised by the Carter Administration.⁵⁴ Australia went on to develop an advanced laser enrichment process, but the owner of the patent, Silex Systems, sold the process to General Electric, which has gone on to develop the process for possible commercial applications.⁵⁵

'Reach Back' to the Anglo-Australian Joint Project

When the Johnson Administration terminated its bilateral nuclear agreement with Australia in the mid-1960s and subsequently refused any clear commitment to supply enriched fuel for "nuclear non-explosive defence"⁵⁶ purposes under the NPT, Australian interest turned to the uranium enrichment consortium (URENCO), composed of Britain, the Federal Republic of Germany and the Netherlands.⁵⁷ It was not unnatural given the British support for the fledgling nuclear program at Lucas Heights after 1955. But any such cooperation had to operate in the context of the restrictions governing "third party" technology transfer that had underpinned Anglo-

⁵³ 'Nuclear-Powered Submarines for Australia', Navy League, November 2010, <<http://navyleague.org.au/wp-content/uploads/2011/05/nuclear-powered-submarine-paper-nov-2010.pdf>> [Accessed 31 August 2013].

⁵⁴ W. Reynolds, 'The Yellow Cake Road: Malcolm Fraser, the Ranger Enquiry and Australia's Role in the US International Fuel Cycle Project', *Australian Journal of Politics and History*, vol. 57 (December 2011), pp. 511-25.

⁵⁵ The Australian company Silex signed an agreement with the US Enrichment Corporation which saw the process classified as "Restricted Data". F. Barnaby, *Secrets, Lies and Uranium Enrichment: The classified Silex Project at Lucas Heights* (Sydney: Greenpeace, 2004). In May 2013 the technology was being engineered to a commercial scale at the GE-Hitachi Laser Enrichment facility in Wilmington. Test Loop Milestone Achieved (Lucas Heights: Silex Systems Limited, 21 May 2013).

⁵⁶ The United States argued in 1973, after Australia had ratified the NPT, that it would not provide fuel for nuclear propulsion under this clause. Only "civil" applications would be considered. The United States position was based on the 1958 International Atomic Energy Agency Statute that required safeguards on all "military" as opposed to "nuclear explosive" uses employed in the NPT. Document 191, Reynolds and Lee, *Australia and the Nuclear Non-Proliferation Treaty*, p. 335.

⁵⁷ R. B. Kehoe, *The Enriching Troika: A History of Urenco to the year 2000* (Urenco, Buckinghamshire, 2002).

American cooperation since the 1948 *modus vivendi*.⁵⁸ Given this qualification Britain may have no such inhibitions about accelerating defence links. It has extensive interests in the Southern Oceans and, as the Falklands war demonstrated, the will to protect them. London not only recognises Australia's claims in Antarctica, but also partnered with Australia in securing the Polar routes well before the Second World War. More importantly, however, as William Hague pointed out, this collaboration was "strategic" and as Hammond said, there would be a "more comfortable fit" in providing defence equipment.⁵⁹

Here Canberra could indeed remember a joint project which Washington could not match. In 1960 Britain cancelled the Blue Streak intermediate-range ballistic missile, the centrepiece of its air delivered nuclear deterrent to be developed at Woomera in Australia. The story is an old one and there is a rich literature on London's difficulties in working within the "Special Relationship" with Washington, one that was particularly tested by the sudden cancellation of Skybolt⁶⁰ by the Kennedy Administration. Only at Nassau in December 1962 was the relationship put back on track when Kennedy formally concluded the offer of the Polaris missile carrying submarine. Such a fleet would, of course, need protection by attack submarines as well as aircraft—areas where Australia could play a role in following Britain to a sea-based nuclear deterrent.⁶¹ Pointedly there was an assumption dating from at least August 1967 that Britain would deploy its conventional fleet to Cockburn Sound near Perth.⁶²

British Polaris submarines were not expected to be deployed until the end of 1969, but a decision on Far Eastern deployment was needed by the end of 1967, when the North West Cape VLF (very low frequency) station was to be operational.⁶³ The key was to find a base for the Polaris fleet and Australian support seemed logical given its geographical position, close historical defence relationship with Britain and the determination of Canberra to keep a British commitment East of Suez. Lord Mountbatten, who had long championed the development of a submarine-based nuclear deterrent, argued that "whatever we did, we could not halt the historical processes

⁵⁸ For the history of this cooperation see W. Reynolds, *Australia's Bid for the Atomic Bomb* (Melbourne: Melbourne University Press, 2000).

⁵⁹ 'Defence Treaty to Cement UK Alliance', *The Australian*, 18 January 2013.

⁶⁰ Skybolt was an air-launched ballistic missile which the United States agreed to supply to equip British Mk. 2 Vulcan aircraft. For details see Humphrey Winn, *RAF Nuclear Deterrent Forces* (London: HMSO, 1994).

⁶¹ Staging facilities at Learmonth and Cocos had been planned from the late 1940s but had been left in abeyance "to allow any US interest in staging facilities". Decision No 139 (FAD), 9 April 1954, NAA: A5827/1.

⁶² 'Atomic/Nuclear Weapons: Policy: Deployment of Polaris Submarines', COS 38/68, 13 June 1968, The National Archives (TNA), London: FCO 16/241.

⁶³ 'Polaris: East of Suez Deployment', note 62/2, 11 August 1966, TNA: DEFE 24/505.

which led inevitably to the loss of our remaining bases in such places as Aden and Singapore”.⁶⁴

The case for remaining East of Suez would be “the defence of Australasia” with the resulting need temporarily to station UK forces there.⁶⁵ Australian Prime Minister Robert Menzies was briefed on New Year’s Eve 1965:

Mr (Harold) Wilson has referred to the possibility of transferring Polaris submarines to the area east of Suez. The question cannot be considered in isolation from our nuclear policy generally ... The introduction by British forces of nuclear weapons would constitute one of the possible alternatives to our manufacturing our own nuclear weapons whereby Australia could independently or otherwise become a nuclear power.⁶⁶

Hammond’s “more comfortable fit” had occurred to others well beforehand. As far as Australian leaders were concerned a British nuclear capability “raises far less political problem (sic) for us than the basing of an American capability in Australia”.⁶⁷ It is instructive that the question of basing British submarines in Australia post-dated the East of Suez decision. There was indeed a clear “Foreign Affairs interest”, noted the Australian Defence Committee in 1973, in having British and American nuclear submarines visiting Australia given the “difficulties in servicing their nuclear-powered warships in the Indian and Pacific Oceans”.⁶⁸

The Polaris submarines were based in the Atlantic, and given the great distances from their base at Faslane, these submarines would need a complex range of facilities including command and control, communications, maintenance, logistics, surveys of patrol and launch areas and those needed to support “nuclear propulsion”.⁶⁹ The British entered discussions with the Australians in June 1966 on the basis that the Royal Air Force would deploy fourteen F111 strike aircraft (and other tactical and air defence squadrons) and the navy would deploy one or two cruisers, four missile destroyers, eight other destroyers/ frigates, and various other support ships. There would also be four nuclear propulsion submarines (SSN) and a submarine depot ship. What is interesting here was the designation SSN—attack submarines—to

⁶⁴ UK Chiefs of Staff Committee Minutes, 14 July 1964, Document 23, in S. R. Ashton, C. Bridge and S. Ward, *Documents on Australian Foreign Policy: Australia and the United Kingdom 1960-1975* (Canberra: DFAT, 2010).

⁶⁵ *Ibid.*

⁶⁶ ‘British Defence Review’: Report by Defence Committee, January 1966, Document 47, Ashton, Bridge and Ward, *Documents on Australian Foreign Policy*.

⁶⁷ Minute, Griffith to Bunting, 19 January 1966, Document 49, in Ashton, Bridge and Ward, *Documents on Australian Foreign Policy*.

⁶⁸ ‘Defence Committee: Visits by Nuclear-powered warships to Australia’, 19 February 1973, NAA: Agendum 2/1973.

⁶⁹ ‘Polaris: East of Suez Deployment’, note 62/2, 11 August 1966, TNA: DEFE 24/505. The “first short study” in Britain of the practical needs of Polaris in Australia, probably Fremantle, was made in January 1965 by the Navy Department. M. Jones and J. W. Young, ‘Polaris, East of Suez: British Plans for a Nuclear Force in the Indo-Pacific, 1964-1968’, *Strategic Studies*, vol. 33, no. 6 (December 2010), p. 855.

the force which did not then exist in the RN's order of battle. Four was also the number of Oberon class submarines that Australia originally ordered from the Royal Navy.⁷⁰

Andrew Priest argues that one area of "independence" in the development of the British Polaris system in the 1960s was the design of the warhead for the advanced A3 missile. This missile had a range of 2500 nautical miles, but for the purposes of strategic strike planning, the United States wanted Polaris tied to Europe and strictly under their control.⁷¹ While the missile was an issue in Anglo-American relations, so was propulsion. In 1963 the Congressional Joint Committee on Atomic Energy declared that "nuclear propulsion provides significant military advantages" and "would free US strike forces from reliance on a worldwide propulsion and fuel distribution system".⁷² The State Department finally dispelled any Australian illusions in February 1965 by announcing that the cooperation on naval nuclear propulsion would not be forthcoming.⁷³ There were also broader issues in cooperating with the United States on propulsion. Duncan Redford argues that the adoption of nuclear propulsion was developed "at a time when the Empire and the economy were under increasing pressure". The decision in 1966, he goes on to argue, to end fixed-wing carrier aviation meant that the nuclear submarine was their last "hallmark of a first-class navy".⁷⁴

That decision coincided with the launch of the RAN's first Oberon class submarines, a force that played a significant part in the development of a more self-reliant Australian defence strategy in the late 1960s. There is a hint of Australia's ambitions for a role in Polaris deployments in the 1968 study of the Australian-American alliance by prominent historian Harry Gelber.

The RAN's four new hunter-killer submarines are conventionally-powered Oberon class submarines from Britain. It seems likely that their successors will be nuclear-powered (whether they will have nuclear-tipped missiles is another matter) ... Unless Australia has enriched fuel for boats from an enrichment facility it will need the US—as does the UK. ... Matters of

⁷⁰ Brief for Holt, 'British Bases in Australia', 27 June 1966, NAA: A1945, 287/3/26.

⁷¹ A. Priest, 'In American Hands: Britain, the United States and the Polaris Nuclear Project 1962-1968', *Contemporary British History*, vol. 19, no. 3 (September 2005), p. 366. The United States sought to coordinate nuclear strike plans under the 1960 Strategic Integrated Operational Plan and later planned—unsuccessfully as it turned out—a NATO nuclear submarine force. The RN, however, retained the option to use the submarines independently when necessary.

⁷² Hearings before the Joint Committee on Atomic Energy, 88th Congress of the US, 30, 31 October and 13 November 1963.

⁷³ Memo. 228/65, Australian Embassy, Washington, to External Affairs, 15 February 1965, NAA: A1838/1720/12.

⁷⁴ D. Redford, 'The "Hallmark of a First-Class Navy": The Nuclear-Powered Submarine in the Royal Navy 1960-77', *Contemporary British History*, vol. 23, no. 2 (June 2009), pp. 184, 193.

procurement and training have obvious implications for the larger fields of science and technology ... Work on nuclear power is a case in point.⁷⁵

In fact members of the AAEC were long involved in this sort of thinking. One of the leading scientists, Clifford Dalton, who had worked at the Dounreay nuclear reprocessing complex in Scotland (which also housed a US Pressure Water Reactor), argued in February 1960 that Australia should build a nuclear vessel for “naval training (and) Antarctic activism”. The RAN agreed: “From a naval defence aspect ... there would be considerable enthusiasm for a nuclear vessel and that experience could be gained in docking and maintenance.”⁷⁶

What is clear is that while the Oberons were the mainstay of *both* the RN and RAN submarine fleets throughout the Cold War, their replacement raised significant issues. The RAN, faced with expanding maritime challenges brought about by the Britain’s withdrawal from the region, planned a new generation of larger submarines with a 10,000 mile range, seventy days at sea and a weight of 2000 tonnes. The Chief of the Naval Staff, Admiral Mike Hudson, stressed the need for “long range vessels” to defend the sea lanes which stretched from Heard and Macquarie islands in the South, to Cocos and Norfolk on the Indian Ocean and Pacific flanks. To academic Joseph Camilleri, Australia’s maritime strategy gave it a virtual “imperial role” over such an area.⁷⁷ Writing at the same time, Michael Pugh drew attention to the problems of extended sea patrols, noting in particular that nuclear propulsion was “distinct from nuclear weapons and would solve problems of replenishment and propulsion”.⁷⁸ The question of cooperation in nuclear propulsion did arise later, in August 1978, against the backdrop of an increasing Soviet naval presence in the Indian Ocean. In Yule and Woolner’s opinion, however, at that time “almost all submariners agree that nuclear propulsion is best” but the Pentagon would not hear of it and Britain, which was now in the nuclear submarine business, could not sell technology without American consent.⁷⁹

It is apparent that Australia was well aware of the advantages of a nuclear replacement for the Oberons. In February 2013 the Navy League of Australia opined that it had been a mistake to rule out the future acquisition of nuclear submarines for the RAN. The League had been arguing since the replacement of the Oberons to acquire a fleet of SSNs and now moved to repeat its position as the end of the Collins submarine capability loomed. While there was as yet no consensus on the Collins replacement, “a shift to

⁷⁵ H. G. Gelber, *The Australian-American Alliance: Costs and Benefits* (Harmondsworth: Penguin, 1968), pp. 37-8.

⁷⁶ Summary of discussion at AAEC, Coogee, 24 February 1960, NAA: A3211/21, 1963/911 Part 1.

⁷⁷ J. A. Camilleri, *ANZUS: Australia’s Predicament in the Nuclear Age* (South Melbourne: Macmillan, 1987), p. 204.

⁷⁸ Pugh, *The ANZUS Alliance: Nuclear Visiting and Deterrence*, p. 5.

⁷⁹ Yule and Woolner, *The Collins Class Submarine Story*, p. 23.

nuclear propulsion would put Australia in line with its major allies".⁸⁰ Indeed, but would they be prepared to assist? Developments in NATO after the Cold War might provide such an opportunity.

Anglo-French Defence Cooperation

One of the more bizarre outcomes of the 2008 global financial crisis and the subsequent cuts to Britain's budget by the Cameron Conservative-Liberal Democrat Alliance was the announcement of a formal defence treaty with France, the first since the Treaty of Dunkirk in 1947. David Cameron and Nicholas Sarkozy announced a wide-ranging plan to coordinate defences.⁸¹ Britain historically prioritised the "Special Relationship" with the United States but has a longer tradition of maintaining a strong relationship with France. It is therefore significant that some saw the Cameron-Sarkozy declaration as a hedge against reliance on the United States. Ian Godden, the chairman of Britain's ADS industry trade group, saw the agreement as ensuring a future for defence research and development:

The alternative, buying off-the shelf from the US, is often not the appropriate solution for our troops and this development ensures that future governments will retain a choice of suppliers—both UK based and from overseas.⁸²

What was most surprising of all was the declaration that there would be for the first time collaboration on the future of the nuclear deterrent.⁸³ Anglo-French collaboration had been attempted briefly before but had run into determined opposition from Washington. In early 1973 the United States moved to block British acquisition of the Poseidon multiple independently targetable reentry vehicle (MIRV). Prime Minister Edward Heath therefore looked across the Channel to France, now a fellow partner in the European Community, as a possible partner in the development of a replacement for Polaris. Henry Kissinger, however, opposed both the sale of a MIRV missile for Britain and also the possibility of a European "bloc" which might cooperate to that end. His displeasure resulted in a ban on intelligence sharing, although Robb notes this was also a by-product of Watergate hysteria.⁸⁴ The step was taken, however, in all likelihood against both France and Britain who threatened to challenge the US monopoly of the sale of nuclear fuel. It was, in any event, a threat that reaped rewards as Britain ruled out collaboration with France and ultimately secured, under Thatcher,

⁸⁰ 'Nuclear Debate Finally Surfaces', *The Navy*, vol. 75, no. 1 (January-March 2013), p. 2.

⁸¹ *Financial Times*, 3 November 2010. See 'Treaty Between the United Kingdom of Great Britain and Northern Ireland and the French Republic for Defence and Security Cooperation', 2 November 2010, <<http://www.official-documents.gov.uk/document/cm79/7975/7975.pdf>>.

⁸² *Financial Times*, 3 November 2010.

⁸³ A new joint warhead simulation facility will be built at the Valduc Nuclear Studies Centre by 2015 along with a joint Technology Centre at Aldermarston. Hans M. Kristensen and Robert S. Norris, 'British Nuclear Forces, 2011', *Bulletin of Atomic Scientists*, vol. 67, no. 5 (2011), p. 93.

⁸⁴ T. Robb, 'Antelope, Poseidon or a Hybrid: The Upgrading of the British Strategic Nuclear Deterrent, 1970-1974', *Strategic Studies*, vol. 33, no. 6 (December 2010), pp. 797-817.

the US Trident submarine with an effective lease on its accurate counter-force II D5 missile.⁸⁵

In 2004 the mutual defence treaty with the United States, which governed arrangements by which Britain would continue to receive US support for Trident, was renewed. This arrangement came, however, as Britain reassessed the prospects for its own nuclear industry, which included the possibility of working closely with the French Areva Company in designing future reactors. There was also scope for the development of a project to fuel SSNs, a step indicated in 2005 when *Janes Defence Weekly* revealed that the government had funded new submarine propulsion studies.⁸⁶ The first Astute submarine was launched in 2007 with a Rolls Royce Pressurised Reactor (PWR2) and development started on a new PWR3 with a twenty-five year life. Davis points to the French utilising the new agreement to access information on the Astute for its “equivalent” Barracuda class SSN. The planned nuclear Barracuda submarines at 2600 tons (submerged) are smaller than the Astute and have a lower enrichment level- requiring refuelling every ten years.⁸⁷ Collaboration with France was formalised under the 2010 Defence Co-operation Treaty which authorised a study into the potential collaboration on nuclear submarine components and technology. Ian David, the Director of NATO Watch, has written herein, that the study “raises the prospect of future joint procurement of a whole new submarine.” While the Defence Treaty largely covered collaboration on conventional defence, there was at the same time a separate treaty on nuclear co-operation which would allow sharing of “cutting edge new research facilities” which are expected to be operational after 2015.⁸⁸

Pointedly what marked both nations, apart from the fact that they provided over fifty-five per cent of the European Union’s armed forces and seventy per cent of defence research and development, was that they were the only Nuclear Weapon States recognised by the NPT.⁸⁹ It was this factor that led some to conclude that the agreement marked a determination by both countries to

retain global reach ... The fact of even limited co-operation in an area as acutely sensitive as nuclear deterrence attest to this understanding that if Europe’s two military powers do not hang together they will hang separately.⁹⁰

⁸⁵ R. Green, *Security without Nuclear Deterrence* (Christchurch: Astron Media, 2010), p. 46.

⁸⁶ Nick Ritchie, ‘Replacing Trident: Britain, America and Nuclear Weapons’, *Contemporary Security Policy*, vol. 28, no. 2 (August 2007), p. 384 and no. 9, p. 400.

⁸⁷ Ian Davis, ‘The UK-France Defence Pact and Nuclear Modernization’, *NATO Watch*, Briefing Paper No. 16 (6 January 2011), p. 4.

⁸⁸ Davis, ‘The UK-France Defence Pact and Nuclear Modernization’, p. 3.

⁸⁹ ‘Anglo-French Deal Rewrites Military History’, *The Independent*, 2 November 2010.

⁹⁰ *Financial Times*, 2 November 2010.

In fact the collaboration could herald a strengthening of a nuclear “US-Anglo-French strategic triangle”. Defence Minister Liam Fox informed the House of Commons on 2 November 2011 that there had long been discussion about making the separate defence relations between Britain and the United States and between Britain and France, a “trilateral” arrangement. The decision had been then taken, he said, “for the moment to strengthen the Anglo-French part”.⁹¹

The Prospects of Working with Australia

The Anglo-French “independent” nuclear deterrent, covered by a separate treaty on Joint Radiographic / Hydrodynamics Facilities, is a commitment under Article 5 of NATO and deployed subject to the NPT and Comprehensive Nuclear Test Ban Treaty (CNTBT). There are two points of interest for Australian policy-makers here. First the Anglo-French Defence and Security Co-operation Treaty is global in scope, envisaging deployments either multilaterally through the UN, NATO and in coalition—or bilaterally. It also allows one party to conduct operations without the engagement of the other on a “case by case” basis.⁹² At the Lancaster House Summit in June 2012 the parties reaffirmed that they had taken their collaboration to “unprecedented levels” and “called for stronger cooperation among European allies and *partners* to develop flexible, deployable [forces].”⁹³ It is important to note in this context that the treaty envisages the creation of a joint maritime expeditionary force.⁹⁴ Indeed Washington itself has impressed upon NATO powers at the 1999 fifty year anniversary of the organisation, as we have seen, that it needs to develop a global capability. Operations in Libya were a case in point. France is pointedly re-engaging with NATO as that organisation expands its activities geographically and operationally, although funding these commitments remains a current issue.

The second issue for Australian analysts is the emphasis in the treaty on the NPT and the CNTBT. This does not rule out collaboration with the British or French on nuclear submarines themselves—as opposed to the nuclear weapons that they might carry. At the same time as the Lancaster House Summit, June 2012, amidst the debate over the Gillard Government’s cut to the defence budget an equally significant issue received little attention. *The Australian* reported that the University College London (UCL) would conduct a study in its first overseas campus at Adelaide on whether Australia could

⁹¹ Davis, ‘The UK-France Defence Pact and Nuclear Modernization’, p. 4.

⁹² Article 1 (3). <http://www.diplomatie.gouv.fr/en/IMG/pdf/Co_opertion_Trety.pdf> [Accessed 8 November 2013].

⁹³ *Anglo-French Summit Defence and Security Declaration*, 17 February 2012, <<http://www.defenceviewpoints.co.uk/defence-news/anglo-french-summit-and-security-declaration>> [Accessed 8 November 2013], emphasis added.

⁹⁴ John Stevens, ‘Some Remarks on the Anglo-French Defence Treaty’, Strategic Update 11.4, London School of Economics and Political Science, <http://www.lse.ac.uk/IDEAS/publications/reports/pdf/SU11_4.pdf> [Accessed 23 January 2013], p. 4.

use nuclear propulsion in a future submarine. The Adelaide research would “evaluate the nation’s role in the nuclear fuel cycle, uranium enrichment and opportunities for the Australian market”. In this context the research would focus on nuclear submarine technology and “third generation submarine capabilities”.⁹⁵ In August 2013, the International Energy Policy Institute of UCL released a Green Paper which indeed confirmed that there were significant advantages in Australia planning to use nuclear submarines. Apart from the operational aspects such as greatly enhanced endurance, there could be a transfer of naval nuclear propulsion technology, employment for “several thousand skilled workers”, considerable opportunities for business investment’ and a chance to allow Australia to ‘champion’ a verification regime for nuclear material used in naval programs. In looking at design options, the Green Paper lists the French Rubus class, the US Virginia class and underscores that “any UK-Australia co-operation would likely be based on the Astute class SSN”.⁹⁶

In that context collaboration with Britain draws on a long history. The ‘Astute choice’ is one that reaches back to Anglo-Australian nuclear cooperation and foreshadows a renewed joint project of some strategic significance and which could at last equip the RAN with nuclear submarines.⁹⁷ Peter Hennessy gives an interesting example of the enduring strategic bonds with Britain. He has located a file in the British National Archives which indicates that each Trident submarine commander was given four choices in the event of nuclear war: retaliate, do not retaliate, use your own judgement or “put yourself under the command of the United States, if it is still there; or sail to Australia, if it’s still there”.⁹⁸ Australian links to Britain date to the beginning of settlement and the sacrifices in the name of that empire reflect the strength of the relationship. The nuclear partnership that emerged after the Second World War was developed in good faith by both sides but could not be accommodated in an American global order. The attempted alliance with URENCO in the 1970s served as an important reminder that Britain still provided the basis of a strategic future partnership built on the development of enrichment centrifuge technology. The crucial factor, as former Foreign Minister Bill Hayden wrote in 1996, was that it was not in Australia’s national interests to “fall behind in nuclear technical competencies”.⁹⁹

⁹⁵ ‘Sub Study To Look at Nuclear Options’ and ‘Win Gold in London ... Or Strike It in Adelaide’, *The Australian*, 20 June 2012. The International Energy Policy Institute in UCL promotes the concept of “Value adding to energy assets, particularly Australian uranium production”, <ucl.ac.uk>.

⁹⁶ ‘Could Australia’s Future Submarines be Nuclear-powered?’, Adelaide: Green Paper, UCL, August 2013, p. 14. Original emphasis.

⁹⁷ A decision on the future of Trident will be taken in 2016. Robert Golan-Vilella, ‘UK Postpones Trident Replacement Amid Cuts’, *Arms Control Today*, November 2010, <http://www.armscontrol.org/act/2010_11Trident> [Accessed 8 November 2013].

⁹⁸ P. Hennessy, *The Secret State: Preparing for the Worst 1945-2010* (London: Penguin, 2010), p. 311.

⁹⁹ B. Hayden, *Bill Hayden: An Autobiography* (Pymble: Angus & Robertson, 1996), p. 422.

A partnership with both British nuclear and defence contractors would be a sensible option. URENCO and Astute builder BAE have extensive knowledge of Australia. The Astute could operate in the vast southern oceans and has specially reinforced bridge fins allowing surfacing through ice caps.¹⁰⁰ Analyst Stuart Klosinski has provided, albeit accidentally, another consideration. He was concerned by the failure of Britain to plan beyond the Astute, noting overlaps in submarine construction between conventional and nuclear programs. But, he argued, "With nations like Australia now recently committed to a large uplift in submarine capability, skills could be attracted away from Britain".¹⁰¹ Klosinski made these remarks in 2010, the year before Anglo-Australian discussions on closer defence relations with a pronounced emphasis on maritime security.

There may be scope for Australian collaboration with an Anglo-French SSN, especially given the fact that the French have barely begun work on the SSN Barracuda class. If history is any guide, Canberra's willingness to work closely with both the British and the French could be continued as they move to coordinate their defence arrangements. Little, however, is written on Australian attitudes to the French presence in the Pacific. The decision of the French to move their nuclear tests from Algeria to the Pacific test site in Tahiti in the early 1960s has more than anything cast the French as an unwelcome intruder in a peaceful neighbourhood. In fact while the French were conducting nuclear tests the AAEC developed close ties with French nuclear scientists. Australian governments from the early 1960s resisted calls for a Nuclear Free Zone in the Pacific and some nuclear scientists championed the purchase of French nuclear reactors.¹⁰² To that end Paris gave permission for senior enrichment experts from the AAEC the opportunity to see for the first time gaseous diffusion technology at their highly secret enrichment plant at Pierrelatte.¹⁰³ The AAEC accepted at the end of 1966 a secret French proposal to sell a "hot cell" as a stage in reprocessing and further to build the entire reprocessing plant.¹⁰⁴

As the British experience emphasised, however, such initiatives were not likely to go down well in Washington. Sir Lawrence McIntyre, the Acting Secretary of the Department of External Affairs on 9 November 1966 warned the AAEC's Maurice Timbs that an acceptance of French nuclear equipment

¹⁰⁰ *The Guardian*, 26 December 2012.

¹⁰¹ Stuart Klosinski, 'Nuclear Subs Are Potent Defence Assets', *Defence Management*, 16 April 2010, <<http://www.defencemanagement.com>> [Accessed August 2013].

¹⁰² Cable 87, British High Commission, Canberra, to FCO, 29 January 1969. Timbs was seen as influential as securing the French bid for a research reactor and that he was 'something of a Francophile'. 'Civil Uses of Atomic Energy: Australia: Sale of Reactors to', TNA, London: FCO 55/301.

¹⁰³ Keith Alder, *Australia's Uranium Opportunities* (Sydney: Pauline Alder, 1996), p.53.

¹⁰⁴ The French had provided safeguards on supplied fuel, but not on the equipment. This meant, of course, that the Australians would get access to the technical knowhow Cable 1530, British High Commission, Canberra, to FCO, 11 December 1968, 'Civil Uses of Atomic Energy: Australia: Sale of Reactors to', TNA: FCO 55/301.

would alienate the United States.¹⁰⁵ Nevertheless, there remained sympathy for the French connection. On 10 September 1971 M. J. Cook of the Defence Policy Branch argued that France had developed a nuclear retaliatory policy and that their defence policy was “very sensible”.¹⁰⁶

France is a Pacific power; has a presence in Antarctica and accepts Australia’s extensive claims there; has always been a key player in Australian defence procurement and has offered close support for Australia’s participation in a full nuclear fuel cycle. A French re-engagement with NATO, as that organisation develops a more global outlook, could well herald collaboration with Australia as well as Britain in an area that all three have an interest—the development of SSNs. A question that arises then is whether Australia should maintain an option to develop a nuclear-powered submarine force as a hedge against a worsening strategic situation in the Asia-Pacific. It may be done, argues Stephan Frühling, if Australia was to have a serious attempt to link the RAN force structure to the 1987 Defence White Paper goals of developing a submarine force to ensure sea denial in its “home waters”. Frühling argues that there is a need to begin a program of continuing production of submarines, a focus of effort that could be affected by cancelling the building of Air Warfare Destroyers (AWD) and the new amphibious ships, which were not needed for a sea denial strategy.¹⁰⁷

In the end Australia may not have a choice. There is a veritable industry built around planning, as Paul Starobin astutely observes, for the next global age “after America”. Nuclear submarines are, in Starobin’s assessment, one of the hallmarks of this era with countries such as India and Brazil now investing in such capabilities.¹⁰⁸ This trend in turn parallels an ongoing debate on the emergence of a sort of “concert” of powers reminiscent of that in nineteenth century Europe.¹⁰⁹ The rapid progress of Chinese and Indian nuclear submarine capabilities may also drag the region into a naval arms race.¹¹⁰ China has committed itself to the development of nuclear power and has a growing fleet of nuclear submarines. India launched the 6000 tonne ballistic missile capable Anhan in 2009, built in India with Russian help, and was on track to acquire the 8140 tonne Charka II in 2012.¹¹¹

¹⁰⁵ Richard Broinowski, *Fact or Fission? The Truth about Australia’s Nuclear Ambitions* (Melbourne: Scribe, 2003), pp. 87-88.

¹⁰⁶ M. J. Cook, ‘French Defence Policy’, 10 September 1971, NAA: A1838/2, 919/10/5 Part 34: Nuclear: NPT.

¹⁰⁷ S. Frühling, ‘Golden Window of Opportunity: A New Maritime Strategy and Force Structure for the Australian Navy’, *Security Challenges*, vol. 4, no. 2 (Winter 2008), pp. 81-104.

¹⁰⁸ P. Starobin, *After America: Narratives for the Next Global Age* (New York: Viking, 2009), pp. 163, 181.

¹⁰⁹ J. Kluth, ‘Pillars of the Next American Century’, *The American Interest*, November/December 2009, pp. 12-3.

¹¹⁰ S. Bateman, ‘Perils of the Deep: The Dangers of Submarine Proliferation in the Seas of East Asia’, *Asian Security* vol. 7, no. 11 (2011).

¹¹¹ *Sydney Morning Herald*, 27 July 2009.

The ultimate hedging strategy, however, one that pays attention to technology transfer and industry development, is to build the submarines in Australia and to make a start on reviving the debate on nuclear power. The head of the Australian Submarine Corporation (ASC) leaves no doubt as to the Australian requirement. The next generation, he declared should be based on an Australian design and that “The ASC is quite capable of building nuclear submarines” which could meet Australia’s operational requirements in such places as the southern oceans with its great distances and huge swells”.¹¹²

Time is clearly needed to fully evaluate the submarine program, and with it the role of nuclear power and the relationship with key allies. US naval analyst Peter Wooley wondered about the role of allies in great power decline, noting that ancient Athens prohibited fortifications because walls would neutralise the power of the Athenian fleet. The lesson from this was, he argued, that the United States needed to cultivate key allies as “an indispensable element of the successful deterrence of full-scale war”.¹¹³ Australia as one of these allies has determined on a blue water capability for both alliance and national purposes, although this commitment faces budgetary pressure. The case for the AWD has been made and accepted, but the role of submarines, which sit at the heart of Australian planning, is unclear.

It is clear that a number of analysts in the United States and Australia, such as Angevin, Friedman, Mitchell, Dibb and Behm, see major problems in the provision of adequate US support for a RAN submarine that can fulfil the aims of the 2009 and 2013 Defence White Papers. Pointedly, the RN nuclear submarine was developed within the “Special Relationship” with the United States, but was also an area in which there was considerable tension. Indeed the whole history of nuclear development after the Second World War has been one where Britain has had to struggle with US determination to restrict sharing its nuclear secrets. Australia has played a significant role in this process seeking to ensure that its national interests informed as far as possible the evolution of grand strategy.

Davies makes the telling point that nuclear submarines require a sophisticated civilian and military nuclear industry that provides the infrastructure and expertise required to maintain and them.¹¹⁴ But Davies also noted in mid 2006 that the United States “looked favourably” upon

¹¹² ‘Defence: Deadline for Departure’, *The Australian*, 29-30 May 2010. On the strategic importance of Antarctica see A. Bergin and M. Haward, ‘Frozen Assets: Securing Australia’s Antarctic Future’, *ASPI Strategic Insight*, no. 34 (April 2007).

¹¹³ P. J. Woolley, *Naval War College Review*, vol. XLIX, no. 1 (Winter 1995), pp. 20, 23.

¹¹⁴ Andrew Davies, ‘Keeping our Heads Above Water: Australia’s Future Submarine’, *ASPI Policy Analysis*, no. 16 (30 January 2008), p. 2.

Australia and Canada as “value adding members of the GNEP.”¹¹⁵ John Howard herein embraced George W. Bush’s promise of a new Global Nuclear Energy Partnership which could see Australia and Canada develop nuclear enrichment.¹¹⁶ Public opinion is a factor and the Labor Party ruled out nuclear power, although that view was far from unanimous.¹¹⁷

The public case, however, has yet to be made. This paper, herein, stresses the need to focus on the strategic issues underlying the debate on the future of Australia’s submarine choices. The United States will take some persuading to support not only an Australian nuclear industry but also the means to fuel nuclear submarines. While the NPT does not prohibit the development of “non-explosive military” uses of nuclear power the US bilateral nuclear agreement does. The US commitment to the Mahan doctrine predates and postdates the Cold War. Beyond that the United States is focused on events in Northeast Asia. Submarines have been central to Australian defence planning since the 1960s. The vast increase in maritime jurisdiction from the 1980s has underscored the priority. The performance of the Collins, moreover, has reinforced the need for a nuclear propulsion capability.

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¹¹⁵ Andrew Davies, ‘Australian Uranium Exports and Security: Preventing Proliferation’, *ASPI Strategic Insights*, no. 28 (August 2006), pp. 15-16.

¹¹⁶ *The Australian*, 29 March 2006.

¹¹⁷ In June 2005 NSW Labor Premier Bob Carr called for a national debate on nuclear power as an alternative to fossil fuel, a move championed by Federal Opposition spokesperson for resources, Martin Ferguson. *The Australian*, 7 June 2005. Joel Fitzgibbon supported enrichment on the grounds that it would ‘exponentially’ increase uranium’s value and also stressed that “enrichment is a live issue ... because you don’t want rogue nations having the right to enrich uranium”, *The Australian*, 26 May 2005. See also views of Paul Howes, the national secretary of the AWU, *The Australian*, 18 May 2010.